

Remarks:

Applicants appreciatively acknowledge the Examiner's confirmation of receipt of Applicants' claim for priority and certified priority document under 35 U.S.C. § 119(a)-(d).

Reconsideration of the application, as amended herein, is respectfully requested.

Claims 7, 8 and 11 - 16 are presently pending in the application. Claim 7 has been amended. Claims 1 - 6 were previously canceled. Claims 9 and 10 have been cancelled herein. New claims 14 - 16 have been added.

On page 2 of the above-identified Office Action, claims 7 - 9 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Japanese Patent Reference No. 08 213163 to Hiroshi et al ("HIROSHI"). On page 3 of the Office Action, claims 7 - 9 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U. S. Patent No. 5,932,934 to Hofstetter et al ("HOFSTETTER").

On page 3 of the Office Action, claims 10 - 13 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over HIROSHI.

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Applicants respectfully traverse the above rejections, as applied to the amended claims.

More particularly, claim 7 has been amended to recite, among other limitations:

operating the converter circuit to set the first switching frequency and the second switching frequency such that the frequency of the noise is lower than a first cut-off frequency or higher than a second cut-off frequency, the second cut-off frequency being higher than the first cut-off frequency; [emphasis added by Applicants]

As such, Applicants' amended claim 7 requires, among other limitations, operating the converter circuit such that the frequency of the noise is **lower than** a first cut-off frequency **or higher than** a second cut-off frequency, the second cut-off frequency being higher than the first, by setting the first and second switching frequencies. In other words, Applicants' claim 7 requires, among other things, the noise frequency to fall outside of the range between the first frequency cut-off and the second frequency cut-off (i.e., the second frequency cut-off being higher than the first). The above limitations of Applicants' amended claim 7 are supported by the specification of the instant application, for example, by former claim 9 and Fig. 3 of the instant application.

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In contrast to Applicants' claimed invention, the **HIROSHI** reference defines a range within which lies the noise frequency of HIROSHI. For example, the English language Abstract of **HIROSHI** states, in part:

Furthermore, a frequency correction means 15 raises the frequency of the inverter having a low frequency, so as to keep an oscillation frequency difference between the inverters 3a and 3b within 1kHz, upon receipt of the frequency recognition signal and a signal from the first frequency detection means 13b for detecting the frequency of the first inverter 3b. [emphasis added by Applicants]

As such, **HIROSHI** discloses that the noise generated by a superposition of two frequencies has a frequency within a frequency band between 0 kHz and 1 kHz (i.e., to keep an oscillation frequency difference . . . within 1 kHz). Given the switching frequency of the first coil of **HIROSHI**, the method of **HIROSHI** severely limits the admissible frequency range of the second coil to values differing by less than 1kHz from the frequency of the first coil, thus making only a very small frequency band available to the second coil.

As such, among other limitations of Applicants' claims, **HIROSHI** fails to teach or suggest a first threshold and a second threshold, higher than the first threshold, wherein the difference between the switching frequencies is higher than the second threshold or lower than the first threshold. Rather, **HIROSHI** only discloses controlling noise so that its

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frequency falls within a predefined frequency band (i.e., between the first and second "thresholds" of 0 kHz and 1 kHz), whereas Applicants' claims require the noise to fall outside of the frequency band defined by the first and second thresholds. As such, HIROSHI fails to teach or suggest, among other limitations of Applicants' claims, **operating the converter circuit such that the frequency of the noise is lower than a first cut-off frequency or higher than a second cut-off frequency**, the second cut-off frequency being higher than the first, by setting the first and second switching frequencies.

Applicants note that page 2 of the Office Action alleged, in part:

. . . (this method claims reciting the functionality of the frequency converter circuit are inherently present in the circuit of the JP reference because the applicant circuit is substantially the same as the one in the JP 8213163 reference).

Applicants respectfully disagree with the above-allegation made in the Office Action. The frequency converter circuit of HIROSHI and the presently claimed invention have different software and/or programming implemented in the respective driver ICs, which programming determines what frequencies may be used simultaneously. As such, even if, arguendo, the two inventions did have identical structure (to which Applicants

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do not agree), they are different devices by virtue of their different programming. Thus, HIROSHI would not "inherently" include all the functionality of the claimed invention, as alleged on page 2 of the Office Action.

The HOFSTETTER reference, cited in the Office Action against Applicants' former claims 7 - 9, does not cure the above-discussed deficiencies of the HIROSHI reference. First, HOFSTETTER fails to teach or suggest regulating power supplied to two loads, as required by Applicants' claims. Further, the one load of HOFSTETTER is supplied with a combination of direct and alternating current. Since direct current has a frequency of zero, by definition, no noise is generated by this superposition in HOFSTETTER. Additionally, HOFSTETTER teaches avoiding "flicker" in the network by using, among other things, a low pass filter to suppress noise below a threshold. This can be seen, for example, from col. 3 of HOFSTETTER, lines 27 - 40, which state:

At least one further low-pass filter can be provided. For example, low-pass filters can be provided respectively at the input and at the output. The employment of an input low-pass filter causes the input current, the input voltage as well as the output current and output voltage always to remain identical in form and frequency (no harmonics, no flickering). As a result of the pulsing of the input current, a low-pass filter is required at the network input in order to generate a continuously flowing network current. Moreover, this low-pass filter insures that the required degree of noise suppression is achieved. The structure and the complexity of the low-pass

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filter is based on the demands of the applicable EMC standards. A low-pass filter at the output can also be necessary according to these demands. [emphasis added by Applicants]

In contrast to the **suppression of noise** of the invention of **HOFSTETTER**, Applicants' claimed invention **avoids generating noise in a particular frequency band, in the first place**. As such, **HOFSTETTER** also fails to teach or suggest, among other limitations of Applicants' claims, **operating the converter circuit to set the first switching frequency and the second switching frequency such that the frequency of the noise is lower than a first cut-off frequency or higher than a second cut-off frequency, the second cut-off frequency being higher than the first cut-off frequency**.

Nor would the combination of **HIROSHI** and **HOFSTETTER** teach or suggest Applicants' claimed invention. Rather, in combination, the **HIROSHI** and **HOFSTETTER** references would disclose to a person of skill in this art, **providing the low-pass filter of HOFSTETTER to suppress noise within a frequency band having a 1kHz limit, as taught by HIROSHI**. The combination would not teach, suggest, or motivate a suitable control for causing the noise to occur **outside** of a defined frequency band, as claimed by Applicants.

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For the foregoing reasons, among others, Applicants' claims are believed to be patentable over **HIROSHI** and **HOFSTETTER**, whether taken alone, or in combination.

Additionally, Applicants' claim 7 has been amended to recite, among other limitations:

regulating an electrical power of at least one of the first and second outputs **by adjusting the switching frequency and the relative switch-on time.** [emphasis added by Applicants]

Thus, Applicants' claim 7 further requires, among other things, **regulating the electrical power of at least one of the first and second outputs by adjusting the switching frequency and the relative switch-on time.** This amendment to claim 7 is also supported by the specification of the instant application, for example, former claim 10, as well as, by paragraph [0027] of the instant application, which states, in part:

The electrical power  $P_2$  for the second induction coil  $I_2$  is now adjusted **by means of the relative switch-on time  $D$  and by means of the switching frequency  $f_2$**  taking into account the two cut-off frequencies  $g_1$  and  $g_2$ .

The **HIROSHI** does not teach or suggest, among other limitations of Applicants' claims, regulating an electrical power of one of the first and second outputs by means of adjusting the switching frequency and the relative switch-on time, as

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required by Applicants' amended claim 7. Although, a person might think to regulate the power generated by a fixed frequency converter by adjusting the relative switch-on time, it would not be apparent to a person of skill in this art to regulate power by adjusting **both, the switching frequency and the relative switch-on time.** Nor would such be taught or suggested by the **HIROSHI** and/or **HOFSTETTER** references.

It is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claim 7. Claim 7 is, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 7.

In view of the foregoing, reconsideration and allowance of claims 7, 8 and 11 - 16 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made.

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Please charge any fees that might be due with respect to  
Sections 1.16 and 1.17 to the Deposit Account of Lerner  
Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,



For Applicants

Kerry P. Sisselman  
Reg. No. 37,237

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Lerner Greenberg Stemer LLP  
Post Office Box 2480  
Hollywood, FL 33022-2480  
Tel: (954) 925-1100  
Fax: (954) 925-1101